

December 6, 2019

BY HAND DELIVERY AND ELECTRONIC MAIL

Luly E. Massaro, Commission Clerk Rhode Island Public Utilities Commission 89 Jefferson Boulevard Warwick, RI 02888

RE: Docket 4979 – The Narragansett Electric Company d/b/a National Grid 2020 Energy Efficiency Program Plan Revisions to Tables and Pre-filed Testimony

Dear Ms. Massaro:

On behalf of National Grid,¹ I enclose for filing with the Public Utilities Commission (PUC) eleven copies of the revised tables listed below and supplemental testimony, which are being filed to correct errors that came to the Company's attention following its 2020 Energy Efficiency Program Plan (Plan) October 15, 2019 filing.

- Enclosure A: Revised Attachment 5 (Bates pages 466-479 of original filing) Tables E-1, E-2, E-3, E-4, E-5, E5-A, E-9 and E-11;
- Enclosure B: Revised Attachment 6 (Bates pages 480-492 of original filing) G-1, G-2, G-3, G-4, G-5, G5-A, G-9, and G-11;
- Enclosure C: Revised Attachment 8 (Bates pages 515-516 of original filing) Table 2, Table 3;
- Enclosure D: Supplemental joint pre-filed testimony of Mr. Christopher Porter and Mr. Matthew Ray.

The revisions associated with Enclosures A, B and C reflect the following corrections:

I. Demonstrations and Assessments Attachment 8 Errors

The innovation demonstrations for gas and electric, as referenced on Attachment 8, Tables 2 and 3, Bates pages 515 and 516, have been reclassified as "Assessments" because the savings from these efforts are unknown and will not be claimed towards the Company's 2020 savings targets. In addition, the Company does not earn a performance incentive for assessments. As a result of this reclassification, the total projected electric budget and gas budget in Attachment 5 and Attachment 6 tables referenced above have each decreased by

¹ The Narragansett Electric Company d/b/a National Grid (National Grid or the Company).

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\$5,000. Relating to this reclassification, the Company has removed the Home Energy Score Evaluation budget (classified as an assessment and referenced on Table 5, Bates page 517) from the spending budget eligible for earning a performance incentive. This correction decreased the total projected gas budget in Attachment 6 tables reference above by an additional \$500. These decreases in the electric and gas budgets do not change the proposed 2020 electric and gas energy efficiency charges due to the relatively small impact on the overall budgets.

Additionally, HVAC Lighting Controls Plus is a dual fuel demonstration and has both a gas and electric budget. Gas budgets for HVAC Lighting Controls Plus were not updated in Table 3, Attachment 8 (Bates page 516 of the Plan). Gas budgets for this demonstration have been included in the response to PUC 1-41 and in the corrections filed for Table 2, Attachment 8. Tables G-2 and G-3, Attachment 6 (Bates pages 481 and 482 of the Plan), do include the gas budgets associated with this demonstration.

II. Energy Efficiency Fund Balance Forecast Correction to Tables E-1 and G-1

On December 3, 2019, the Company discovered two errors in the electric and gas 2019 Year End Fund Balance estimates during a peer review session. First, the Company discovered that it had inadvertently misclassified certain Commercial and Industrial (C&I) Energy Efficiency Electric expenses as C&I Energy Efficiency Gas expenses, and vice versa. This resulted in an understatement of C&I expenses in the Energy Efficiency Electric 2019 Year End Fund Balance of \$1,546,138 and a corresponding overstatement of C&I expenses in the Energy Efficiency Gas 2019 Year End Fund Balance of \$1,546,138. Second, the Company discovered that it had not updated the interest rate calculation in the Gas Energy Efficiency Fund balance forecast for August-December 2019. Both errors were the result of manual input errors. Going forward the Company intends to reduce manual inputs in the process and accelerate the timeline and frequency of the peer review process.

The enclosed revised E-1 and G-1 tables include a projected fund balance that corrects the misclassification of C&I expenses between Energy Efficiency Electric and Energy Efficiency Gas, as well as an interest rate adjustment in Energy Efficiency Gas. The correction to the interest rate calculation results in a decrease in Energy Efficiency Gas interest income of approximately \$7,000.

The overall net effect of the two manual input errors resulted in an overstatement of the Energy Efficiency Electric 2019 Year End Fund Balance of \$1,570,673 and an understatement of the Energy Efficiency Gas 2019 Year End Fund Balance of \$1,565,197. Please note there is a cumulative effect in the overall interest amounts due to the two errors noted above.

The Company's discovery of these errors was a result of ongoing inquiries from the Division following the Company's previously disclosed discovery and correction of similar manual data entry errors related to the System Reliability Procurement Report in Docket No. 4980. Specifically, the discovery and correction of these errors was a direct result of actions taken by the Company to address root causes and implement certain end-to-end process

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improvements following the identification and correction of those issues. The Company is appreciative of the Division's ongoing engagement on these matters and anticipates continued collaboration with the Division on the review and implementation of additional corrective measures.

Specifically, the internal team within the Company (the Product Reporting team) that manages the EEP fund balance model will be taking actions in the following areas related to the maintenance of fund balance models and associated energy efficiency and SRP surcharge rates:

- a. Data/process automation
- b. Improved internal system controls
- c. Improved internal process controls
- d. Improved review process
- Product Reporting will update the fund balance model to automate the data and process for EEP Rate calculation. Previously, multiple manual data handoffs existed between the Product Reporting, Rhode Island EE, and Rhode Island SRP teams. Product Reporting will remove these data handoffs to better automate the process by incorporating Tables E-1 and S-1, which are reported in the annual filings, into the fund balance model. This improvement will eliminate the SRP data timing issue, thereby reducing manual data entry errors.
- Product Reporting will also update the fund balance model to include system controls to limit data input errors and update all relevant documentation to reflect process improvements. Improvements to the fund balance logic will prevent accidental reuse of constants used in the model. Previously, the SRP Factor was not associated with a specific year. Product Reporting will update the fund balance model to tie the SRP Factor to a specific year to eliminate the SRP Factor error.
- The Company will facilitate a process improvement initiative to create additional process controls regarding billed SRP revenue. Currently, SRP and EE revenue is blended in the Company's billing system, which is the primary data source for EEP revenue, and are only tracked separately in the fund balance data model. Going forward, SRP revenue will be tagged with a data attribute in the Company's billing system to clearly distinguish SRP revenue from EE revenue. This update will allow the Company to track SRP and EE revenue separately in the Company's billing system. As a result, the manual calculation of SRP revenue that contributed to the SRP Factor error will no longer be necessary.
- The Company will initiate regular reviews of the fund balance reconciliation with internal stakeholders, including the Rhode Island EE, Rhode Island SRP, and Accounting teams. The review will encompass reconciliations against all system-generated reports and verify all manual inputs, such as starting balances and interest rates, for EEP fund balance activity. Errors identified within regular reviews will be catalogued and root causes identified to promote continuous process improvement.

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Electric - Table E-1

The updated projected Year-End 2019 Electric Fund Balance decreased by \$1,570,673. The decrease in the fund balance results in an increase of 1.76% in the proposed 2020 Electric Energy Efficiency Program Charge filed on December 2, 2019. Specifically, the proposed charge has increased from \$0.01304 per kWh to \$0.01327 per kWh.

Gas – Table G-1

The following changes are reflected in the enclosed updated Table G-1: (1) the updated projected Year-End 2019 Natural Gas Fund Balance increased by \$1,565,197; (2) the Year-End 2019 Residential Gas Fund Balance decreased by \$1,310; and (3) the Year End 2019 C&I Gas Fund Balance increased by \$1,566,507. This results in a net increase of \$1,565,197. This correction results in a decrease in the proposed Natural Gas Energy Efficiency C&I Program Charge of 9.4%. Specifically, the proposed C&I charge has decreased from \$0.777 per Dth to \$0.704 per Dth. The decrease in the Residential fund balance results in no change to the proposed Residential charge of \$1.011 per Dth.

III. Additional Corrections

Additionally, the Company is filing supplemental pre-filed testimony of Mr. Christopher Porter and Mr. Matthew Ray. The purpose of this testimony is to correct the responses given to two questions in the October 15, 2019 pre-filed testimony. It also identifies the new measures being proposed in the Company's 2020 Plan.

Lastly, the Company wishes to make the following correction and/or updates to the October 15, 2019 filing:

- 1. As indicated in the Company's response to PUC 1-62, the entire paragraph at the top of Bates page 346 should be deleted from the Plan because it is language from a prior (and outdated) version;
- 2. Bates page 5 states that the plan was approved on October 4th by the EERMC. This should state October 3rd.
- 3. On Bates page 17 in the last paragraph that asks, "How are these proposed costs consistent with LCP Standards" the word "measure" should be replaced with "program" in the answer.
- 4. On Bates page 2, Matthew Ray's title has since changed from Lead Analyst at the time of filing to Manager, Customer Energy Management, Rhode Island.
- 5. In the table on Bates page 119, the electric to electric heat pump number offered through the HVAC program should be listed as 38 instead of 25. As a result, the total number should be 193 instead of 180.

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The Company apologizes for any inconvenience that may have been caused because of these errors.

Thank you for your attention to this transmittal. If you have any questions, please contact me at 781-907-2121.

Sincerely,

Raquel J. Webster

Enclosures

cc: Docket 4979 Service List Jon Hagopian, Esq. John Bell, Division

Certificate of Service

I hereby certify that a copy of the cover letter and any materials accompanying this certificate was electronically transmitted to the individuals listed below.

The paper copies of this filing are being hand delivered to the Rhode Island Public Utilities Commission and to the Rhode Island Division of Public Utilities and Carriers.

Joanne M. Scanlon

December 6, 2019

Date

Docket No. 4979 - National Grid – 2020 Energy Efficiency Plan (EEP) Service list updated 10/30/2019

Name/Address	E-mail Distribution List	Phone
National Grid	Raquel.webster@nationalgrid.com;	781-907-2121
Raquel Webster, Esq.	Joanne.scanlon@nationalgrid.com;	
National Grid	Celia.obrien@nationalgrid.com;	
280 Melrose St.	Matthew.Chase@nationalgrid.com;	
Providence, RI 02907	Timothy.Roughan@nationalgrid.com;	
	John.richards@nationalgrid.com;	
	Christopher.porter@nationalgrid.com;	
	Matthew.ray2@nationalgrid.com;	
Division of Public Utilities and Carriers	Jon.hagopian@dpuc.ri.gov;	401-784-4775
Jon Hagopian, Esq.		
	Jonathan.Schrag@dpuc.ri.gov;	
	john.bell@dpuc.ri.gov;	
	Ronald.Gerwatowski@dpuc.ri.gov;	
	Joel.munoz@dpuc.ri.gov;	
Tim Woolf	twoolf@synapse-energy.com;	
Jennifer Kallay		
Synapse Energy Economics	jkallay@synapse-energy.com;	
22 Pearl Street		
Cambridge, MA 02139		
RI EERMC	marisa@desautelesq.com;	401-477-0023
Marisa Desautel, Esq.		
Office of Marisa Desautel, LLC 55 Pine St.	guerard@optenergy.com;	
Providence, RI 02903		
Flovidelice, KI 02903	ross@optenergy.com;	
Mike Guerard, Optimal Energy	kravatz@optenergy.com;	
Acadia Center	ENiedowski@acadiacenter.org;	617-742-0054
Erika Niedowski		Ext. 104
31 Milk Street Suite 501		
Boston, MA 02108		
Office of Energy Resources (OER)	Andrew.Marcaccio@doa.ri.gov;	401-222-8880

Andrew Marcaccio, Esq.	daniel.majcher@doa.ri.gov;	
Daniel Majcher, Esq.	Nancy.Russolino@doa.ri.gov;	
Dept. of Administration	Carol.grant@energy.ri.gov;	
Division of Legal Services	Christopher.Kearns@energy.ri.gov;	
One Capitol Hill, 4 th Floor	Nicholas.Ucci@energy.ri.gov;	
Providence, RI 02908	Becca.Trietch@energy.ri.gov;	
	Carrie.Gill@energy.ri.gov;	
Carol Grant, Commissioner	Nathan.Cleveland@energy.ri.gov;	
Green Energy Consumers Alliance	Larry@massenergy.org;	
Larry Chretien, Executive Director	kai@greenenergyconsumers.org;	
Kai Salem		
TEC-RI	doug@tecri.org;	
Doug Gablinske, Executive Director		
The Energy Council of RI		
Original & 9 copies file w/:	Luly.massaro@puc.ri.gov;	401-780-2107
Luly E. Massaro, Commission Clerk	Cynthia.WilsonFrias@puc.ri.gov;	
John Harrington, Commission Counsel	John.Harrington@puc.ri.gov;	
Public Utilities Commission	Alan.nault@puc.ri.gov;	
89 Jefferson Blvd.	Todd.bianco@puc.ri.gov;	_
Warwick, RI 02888	Sharon.ColbyCamara@puc.ri.gov;	_
	Margaret.hogan@puc.ri.gov;	1
Frederick Sneesby	Frederick.sneesby@dhs.ri.gov;	
Dept. of Human Services		
Chris Vitale, Esq., RI Infrastructure Bank	cvitale@hvlawltd.com;	

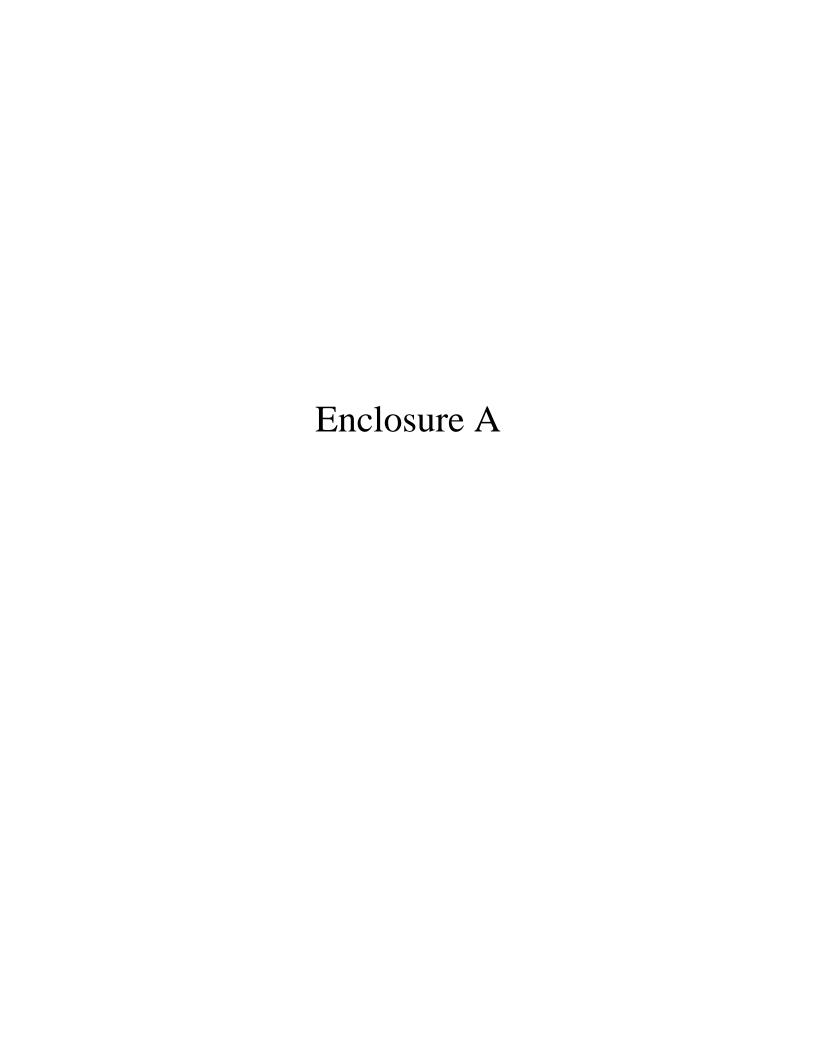


Table E-1 National Grid Electric DSM Funding Sources in 2020 by Sector \$(000)

(1)	Projected Budget (from E-2):	Income Eligible Residential \$17,267.57	Projections by Sector Non-Income Eligible Residential \$46,777.51	Commercial & Industrial \$47,309.83	Total \$111,354.91
	Sources of Other Funding:				
(2)	Projected DSM Commitments at Year-End 2019:	\$0.00	\$0.00	\$0.00	\$0.00
(3)	Projected Year-End 2019 Fund Balance and Interest:	\$0.00	(\$10,628.17)	\$12,328.11	\$1,699.94
(4)	Projected FCM Payments from ISO-NE:	\$515.40	\$6,750.90	\$10,215.40	\$17,481.76
(5)	Total Other Funding:	\$515.40	(\$3,877.27)	\$22,543.51	\$19,181.70
(6)	Customer Funding Required:	\$16,752.17	\$50,654.79	\$24,766.32	\$92,173.21
(7)	Forecasted kWh Sales:	209,721,362	2,746,941,631	4,156,636,312	7,113,299,305
(8)	Energy Efficiency Program charge per kWh, excluding uncollectible recovery:				\$0.01295
(9)	Proposed System Reliability Factor per kWh, excluding uncollectible recovery:				<u>\$0.00015</u>
(10)) Total Proposed Energy Efficiency Charge per kWh, excluding uncollectible recovery:				\$0.01310
(11)) Currently Effective Uncollectible Rate				1.30%
(12)	Energy Efficiency Program charge per kWh, including uncollectible recovery:				\$0.01327
(13)	Currently Effective EE Charge				\$ <u>0.01121</u>
(14)) Proposed Adjustment to Reflect Fully Reconciling Funding Mechanism				\$0.00206

- (1) Projected Budget from E-2 includes OER and EERMC costs allocated to each sector based on forecasted sales and RIIB costs allocated to C&I sector.
- (2) DSM Commitments are projects that are under construction with anticipated completion in 2019.
- (3) Fund balance projections include projected revenue and spend through year end with Low Income sector set to \$0 through projected subsidization from other sectors, minus commitments which are illustrated separately on line (2). The Company proposes to refile this table with updated Fund Balance projections on December 2, 2019 as proposed in Section 4.b. of the Plan's Main Text. The Fund Balance reflects an anticipated transfer of \$2,662,675 from the Large C&I Revolving Loan Fund and \$1,214,977 from the Small Business Revolving Loan Fund in October 2019.
- (4) The total projection of FCM revenue is allocated by kWh sales to each sector.
- (5) Line (2) + Line (3) + Line (4)
- (6) Line (1) Line (5)
- (7) Per Company Forecast (8) Line (6) ÷ Line (7), truncated to 5 decimal places
- (9) Truncated to 5 decimal places
- (11) Proposed System Reliability Factor is from the Proposed 2020 System Reliability Procurement Plan. Charge reflects projected year-end 2019 fund balance.
- (10) Line (8) + Line (9)
- $\left(11\right)$ Uncollectible rate approved in Docket No 4770.
- (12) Line (10) \div (1-Line (11), truncated to 5 decimal places
- (13) Currently Effective EE Charge includes System Reliability Factor and uncollectible recovery. (14) Line (13) Line (12)

Table E-2 National Grid 2020 Electric Energy Efficiency Program Budget (\$000)

	Program Planning & Administration	Marketing	Rebates and Other Customer Incentives	Sales, Technical Assistance & Training	Evaluation & Market Research	Total Performance Incentive	Grand Total
Non-Income Eligible Residential							
Residential New Construction	\$57.9	\$2.2	\$537.19	\$326.0	\$50.1		\$973.5
ENERGY STAR® HVAC	\$70.0	\$252.0	\$2,063,86	\$375.6	\$21.7		\$2,783.2
EnergyWise	\$345.9	\$393.5	\$13,758.78	\$1,023.7	\$170.3		\$15,692.2
EnergyWise Multifamily	\$79.1	\$43.1	\$2,174.00	\$405.1	\$103.0		\$2,804.3
ENERGY STAR® Lighting	\$338.3	\$577.4	\$13,917.85	\$418.7	\$123.5		\$15,375.8
Residential Consumer Products	\$62.5	\$519.1	\$1,093,92	\$519.4	\$4.2		\$2,199.2
Home Energy Reports	\$73.8	\$10.6	\$2,540.73	\$10.1	\$92.9	+	\$2,728.1
Residential ConnectedSolutions	\$11.0	\$0.2	\$315.49	\$134.9	\$0.0		\$461.6
Energy Efficiency Education Programs	\$0.0	\$40.0	\$0.00	\$0.0	\$0.0		\$40.0
Residential Pilots	\$10.8	\$26.0	\$190.00	\$44.0	\$17.0		\$287.8
Community Based Initiatives - Residential	\$29.5	\$90.0	\$84.38	\$0.0	\$0.0		\$203.9
Comprehensive Marketing - Residential	\$2.4	\$379.9	\$0.00	\$0.0	\$0.0		\$382.3
Residential Performance Incentive	\$0.0	\$0.0	\$0.00	\$0.0	\$0.0	\$2,155.4	\$2,155.4
Subtotal - Non-Income Eligible Residential	\$1,081.4	\$2,334.0	\$36,676.2	\$3,257.6	\$582.7	\$2,155.4	\$46,087.3
Income Eligible Residential							
Single Family - Income Eligible Services	\$288.3	\$143.4	\$10,165.82	\$2,133.5	\$115.1		\$12,846.1
Income Eligible Multifamily	\$92.0	\$9.1	\$2,923.20	\$403.8	\$120.9		\$3,549.0
Income Eligible Performance Incentive	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$819.8	\$819.8
Subtotal - Income Eligible Residential	\$380.3	\$152.5	\$13,089.0	\$2,537.3	\$236.0	\$819.8	\$17,214.9
Commercial & Industrial							
Large Commercial New Construction	\$184.6	\$315.6	\$3,136.92	\$1,237.1	\$461.5		\$5,335.7
Large Commercial Retrofit	\$703.1	\$244.7	\$17,612.82	\$4,393.99	\$846.7		\$23,801.3
Small Business Direct Install	\$258.8	\$297.2	\$6,507.90	\$322.9	\$181.9		\$7,568.6
Commercial ConnectedSolutions	\$32.3	\$2.1	\$1,715.00	\$329.1	\$0.0		\$2,078.5
Commercial Pilots	\$16.3	\$22.0	\$0.00	\$48.0	\$20.0		\$106.3
Community Based Initiatives - C&I	\$9.8	\$28.1	\$28.13	\$0.0	\$0.0		\$66.1
Finance Costs	\$0.0	\$0.0	\$5,216.67	\$0.0	\$0.0		\$5,216.7
Commercial & Industrial Performance Incentive	\$0.0	\$0.0	\$0.00	\$0.0	\$0.0	\$2,092.2	\$2,092.2
Subtotal - Commercial & Industrial	\$1,204.8	\$909.7	\$34,217.4	\$6,331.2	\$1,510.1	\$2,092.2	\$46,265.4
Regulatory	\$000 Z	# 0.0	*	60.0	60.0		0002.7
OER	\$893.7	\$0.0	\$0.0	\$0.0	\$0.0		\$893.7
EERMC Subtotal Regulators	\$893.7 \$1,787.4	\$0.0 \$0.0	\$0.0 \$0.0	\$0.0 \$0.0	\$0.0 \$0.0	\$0.0	\$893.7
Subtotal - Regulatory			·			· ·	\$1,787.4
Grand Total	\$4,453.9	\$3,396.2	\$83,982.6	\$12,126.0	\$2,328.8	\$5,067.4	\$111,354.9

- (1) 2019 Large Commercial Retrofit Commitments (\$000):
- $(2) \ For \ more \ information \ on \ Finance \ Costs, \ please \ refer \ to \ the \ 2020 \ C\&I \ Program \ Description, \ Attachment \ 2.$
- (3) OER and EERMC total 2.0% of customers' EE Program Charge collected on Table E-1, minus 2%. \$0 is included in 2020 OER budget for Evaluation and Market Research to comply with Senate Bill 2500, enacted in June 2018. The law requires the OER to hire an energy consulting company or firm to review and confirm reported
- (4) Finance Costs include a \$5.21 million transfer to the Rhode Island Infrastructure Bank Efficient Buildings Fund. Finance Costs are detailed in Table E-10.
- (5) System Reliability funds are included for illustrative purposes. They are part of the 2020 System Reliability Procurement Report, filed as a separate docket.
- (6) Rebates and Other Customer Incentives are broken into two columns in order to show the values used in the secondary sharedholder incentive mechanism in table E-9
- (7) Demonstrations and Assessments budgets are included in specific program level budgets listed above. More information on Demonstration and Assessments descriptions, budgets, and which program level budget they are included in can be found in Attachment 8.

Table E-3 National Grid Derivation of the 2020 Spending and Implementation Budgets (\$000)

	Proposed 2020 Budget From E-2	Commitments	Regulatory Costs	Performance Incentive	Eligible Sector Spending Budget for Performance Incentive on E-9	Implementation Expenses for Cost- Effectiveness on E-5
Non-Income Eligible Residential						
Residential New Construction	\$973.5					\$973.5
ENERGY STAR® HVAC	\$2,783.2					\$2,783.2
EnergyWise	\$15,692.2					\$15,692.2
EnergyWise Multifamily	\$2,804.3					\$2,804.3
ENERGY STAR® Lighting	\$15,375.8					\$15,375.8
Residential Consumer Products	\$2,199.2					\$2,199.2
Home Energy Reports	\$2,728.1					\$2,728.1
Residential ConnectedSolutions	\$461.6					\$461.6
Energy Efficiency Education Programs	\$40.0					\$40.0
Residential Pilots	\$287.8					\$287.8
Community Based Initiatives - Residential	\$203.9					\$203.9
Comprehensive Marketing - Residential	\$382.3					\$382.3
Residential Performance Incentive	\$2,155.4			\$2,155.4		\$0.0
Subtotal - Non-Income Eligible Residential	\$46,087.3	\$0.0	\$0.0	\$2,155.4	\$43,107.4	\$43,931.9
Income Eligible Residential	·			·		·
Single Family - Income Eligible Services	\$12,846.1					\$12,846.1
Income Eligible Multifamily	\$3,549.0					\$3,549.0
Income Eligible Performance Incentive	\$819.8			\$819.8		\$0.0
Subtotal - Income Eligible Residential	\$17,214.9	\$0.0	\$0.0	\$819.8	\$16,395.1	\$16,395.1
Commercial & Industrial						
Large Commercial New Construction	\$5,335.7	\$0.0				\$5,335.7
Large Commercial Retrofit	\$23,801.3	\$0.0				\$23,801.3
Small Business Direct Install	\$7,568.6	\$0.0				\$7,568.6
Commercial ConnectedSolutions	\$2,078.5					\$2,078.5
Commercial Pilots	\$106.3					\$106.3
Community Based Initiatives - C&I	\$66.1					\$66.1
Finance Costs	\$5,216.7					\$5,216.7
Commercial & Industrial Performance Incentive	\$2,092.2			\$2,092.2		\$0.0
Subtotal - Commercial & Industrial	\$46,265.4	\$0.0	\$0.0	\$2,092.2	\$41,844.5	\$44,173.2
Regulatory						
OER	\$893.7		\$893.7			\$893.7
EERMC	\$893.7		\$893.7			\$893.7
Subtotal - Regulatory	\$1,787.4	\$0.0	\$1,787.4	\$0.0	\$0.0	\$1,787.4
Grand Total	\$111,354.9	\$0.0	\$1,787.4	\$5,067.4	\$101,347.1	\$106,287.6

- (1) Eligible Sector Spending Budget for Performance Incentive (Core Mechanism) on E-9 = Total Budget from E-2 minus commitments, regulatory costs, pilots, assessments, Residential ConnectedSolutions, Commercial ConnectedSolutions, Performance Incentive
- $(2) \ Eligible \ Sector \ Spending \ Budget \ does \ not \ include \ assessments, see \ Attachment \ 8 \ for \ assessments \ budgets.$
- (3) Implementation Expenses = Total Budget from E-2 minus commitments and Performance Incentive.
 (4) Finance Costs include a \$5.21 million transfer to the Rhode Island Infrastructure Bank Efficient Buildings Fund. Finance Costs are detailed in Table E-10.

Table E-4 National Grid Proposed 2020 Budget Compared to Approved 2019 Budget (\$000)

	Proposed	Approved	
	Implementation	Implementation	D.100
N. T. DI. 11 D. 11 (1)	Budget 2020	Budget 2019	Difference
Non-Income Eligible Residential	4070 7	40.50	
Residential New Construction	\$973.5	\$858.6	\$114.8
ENERGY STAR® HVAC	\$2,783.2	\$2,724.0	\$59.3
EnergyWise	\$15,692.2	\$15,777.5	-\$85.3
EnergyWise Multifamily	\$2,804.3	\$3,064.9	-\$260.5
ENERGY STAR® Lighting	\$15,375.8	\$14,968.2	\$407.6
Residential Consumer Products	\$2,199.2	\$2,124.5	\$74.7
Home Energy Reports	\$2,728.1	\$2,641.2	\$86.9
Residential ConnectedSolutions	\$461.6	\$283.1	\$178.5
Energy Efficiency Education Programs	\$40.0	\$40.0	\$0.0
Residential Pilots	\$287.8	\$222.7	\$65.1
Community Based Initiatives - Residential	\$203.9	\$121.5	\$82.4
Comprehensive Marketing - Residential	\$382.3	\$556.5	-\$174.2
Subtotal - Non-Income Eligible Residential	\$43,931.9	\$43,382.8	\$549.1
Income Eligible Residential			
Single Family - Income Eligible Services	\$12,846.1	\$11,694.7	\$1,151.4
Income Eligible Multifamily	\$3,549.0	\$3,382.9	\$166.1
Subtotal - Income Eligible Residential	\$16,395.1	\$15,077.6	\$1,317.5
Commercial & Industrial			
Large Commercial New Construction	\$5,335.7	\$5,036.1	\$299.6
Large Commercial Retrofit	\$23,801.3	\$21,356.5	\$2,444.8
Small Business Direct Install	\$7,568.6	\$8,712.8	-\$1,144.2
Commercial ConnectedSolutions	\$2,078.5	\$2,024.1	\$54.3
Community Based Initiatives - C&I	\$66.1	\$40.1	\$26.0
Commercial Pilots	\$106.3	\$197.9	-\$91.7
Finance Costs	\$5,216.7	\$5,000.0	\$216.7
Subtotal Commercial & Industrial	\$44,173.2	\$42,367.7	\$1,805.5
Regulatory			
EERMC	\$893.7	\$783.6	\$110.1
OER	\$893.7	\$989.8	-\$96.1
Subtotal Regulatory	\$1,787.4	\$1,773.4	\$14.0
TOTAL IMPLEMENTATION BUDGET	\$106,287.6	\$102,601.5	\$3,686.1
OTHER EXPENSE ITEMS	ФО О	#0.0	Φ0.0
Commitments	\$0.0	\$0.0	\$0.0
Company Incentive	\$5,067.4	\$4,905.0	\$162.3
Subtotal - Other Expense Items	\$5,067.4	\$4,905.0	\$162.3
TOTAL BUDGET	\$111,354.9	\$107,506.5	\$3,848.4

- $(1)\ Program\ Implementation\ Budget\ excludes\ Commitments,\ Company\ Incentive;\ derived\ on\ Table\ E-3$
- (2) Total Budget includes Implementation, Commitments; illustrated on Table E-3
- (3) The Single Family Income Eligible Services budget increase is driven by a 10% increase in the number of home assessments and associated measures.
- (4) The Large Commercial Retrofit budget increase is due to a higher cost of savings from the 2019 Annual Plan.
- (5) The Small Business Direct Install budget decrease is due to a net decrease in MWh savings from the 2020 Annual Plan.

Table E-5 National Grid Calculation of 2020 Program Year Cost-Effectiveness All Dollar Values in (\$000)

	RI Test				Program					
	Benefit/		Total	Im	plementation	Cı	ustomer	S	hareholder	¢/Lifetime
	Cost ¹		Benefit		Expenses ²	Cor	tribution		Incentive	kWh
Non-Income Eligible Residential										
Residential New Construction	2.65	\$	4,712.9	\$	973.5	\$	807.8			11.2
ENERGY STAR® HVAC	2.64	\$	12,522.0	\$	2,783.2	\$	1,965.1			25.3
EnergyWise	2.23	\$	38,682.0	\$	15,692.2	\$	1,659.1			77.8
EnergyWise Multifamily	2.79	\$	9,296.8	\$	2,804.3	\$	532.0			11.4
Home Energy Reports	2.82	\$	7,701.1	\$	2,728.1	\$	-			11.7
ENERGY STAR® Lighting	6.05	\$	62,401.2	\$	15,375.8	\$	(5,069.1)			5.3
Residential Consumer Products	2.97	\$	9,942.9	\$	2,199.2	\$	1,151.4			10.5
Residential ConnectedSolutions	3.68	\$	1,697.1	\$	461.6	\$	-			N/A
Energy Efficiency Education Programs				\$	40.0					
Residential Pilots				\$	287.8					
Community Based Initiatives - Residential				\$	203.9					
Comprehensive Marketing - Residential				\$	382.3					
Non-Income Eligible Residential SUBTOTAL	3.12	\$	146,956.0	\$	43,931.9	\$	1,046.2	\$	2,155.4	13.3
Income Eligible Residential										
Single Family - Income Eligible Services	2.78	\$	35,667.4	\$	12,846.1	\$	-			31.8
Income Eligible Multifamily	2.33_	\$	8,286.5	\$	3,549.0	\$	-			11.1
Income Eligible Residential SUBTOTAL	2.55	\$	43,953.9	\$	16,395.1	\$	-	\$	819.8	22.7
Commercial & Industrial										
Large Commercial New Construction	7.00	\$	43.816.6	\$	5,335.7	\$	920.2			4.2
Large Commercial Retrofit	8.01	\$	303,474.8	\$	23,801.3	\$	14,065.2			4.6
Small Business Direct Install	3.75	\$	37,514.2	\$	7,568.6	\$	2,439.0			7.9
Commercial ConnectedSolutions	13.01	\$	27,031.2	\$	2.078.5	\$				N/A
Commercial Pilots	10.01	Ψ	27,001.2	\$	106.3	Ψ				1,111
Community Based Initiatives - C&I				\$	66.1					
Finance Costs				\$	5,216.7					
C&I SUBTOTAL	6.47	\$	411,836.8	\$	44,173.2	\$	17,424.4	\$	2,092.2	5.6
Regulatory										
OER				\$	893.7			1		
EERMC				\$	893.7					
Regulatory SUBTOTAL				\$	1,787.4			1		
3 -		ф	602 F46 F	<u> </u>		φ.	10.450 <	ф	5.065.1	0.2
TOTAL	4.64	\$	602,746.7	\$	106,287.6	\$	18,470.6	\$	5,067.4	8.3

Notes:

 $(1) \ RI \ Test \ B/C \ Test = (Energy + Capacity + Resource \ Benefits + Economic \ Benefits + Carbon \ Benefits) / (Program \ Implementation + Customer \ Contribution + Performance \ Incentive)$

Also includes effects of free-ridership and spillover.

- (2) For Implementation Expenses derivation, see Table E-3.
- (3) ENERGY STAR® Lighting customer cost is negative due to a high free-ridership rate. Any financial incentives paid to free-riders are counted as a cost because the Company incurred those costs as part of the overall cost of the Plan regardless of whether the participant is free-rider or not. Therefore the Company reduces benefits and the customer cost by the net-to-gross ratio but not the incentives.

Table E-5A National Grid Calculation of 2020 Program Year Cost-Effectiveness with TRC Test All Dollar Values in (\$000)

Г									
	TRC			Program					
	Benefit/		Total	plementation		Customer	Sh	areholder	¢/Lifetime
	Cost ¹		Benefit	Expenses ²	(Contribution]	Incentive	kWh
Non-Income Eligible Residential									
Residential New Construction	1.62	_	2,894.2	\$ 973.5	\$	807.8			11.2
ENERGY STAR® HVAC		\$	6,977.8	\$ 2,783.2	\$	1,965.1			25.3
Energy Wise	1.13	\$	19,651.6	\$ 15,692.2	\$	1,659.1			77.8
EnergyWise Multifamily	1.49	\$	4,964.2	\$ 2,804.3	\$	532.0			11.4
Home Energy Reports	1.54		4,203.2	\$ 2,728.1	\$	-			11.7
ENERGY STAR® Lighting	3.27	\$	33,670.0	\$ 15,375.8	\$	(5,069.1)			5.3
Residential Consumer Products	1.67	\$	5,610.3	\$ 2,199.2	\$	1,151.4			10.5
Residential ConnectedSolutions	3.68	\$	1,697.1	\$ 461.6					
Energy Efficiency Education Programs				\$ 40.0					
Residential Pilots				\$ 287.8					
Community Based Initiatives - Residential				\$ 203.9					
Comprehensive Marketing - Residential				\$ 382.3					
Non-Income Eligible Residential SUBTOTAL	1.69	\$	79,668.4	\$ 43,931.9	\$	1,046.2	\$	2,155.4	13.3
Income Eligible Residential					\$	-			
Single Family - Income Eligible Services	1.71	\$	21,993.7	\$ 12,846.1	\$	=			31.8
Income Eligible Multifamily	1.03	\$	3,644.0	\$ 3,549.0	\$	-			11.1
Income Eligible Residential SUBTOTAL	1.49	\$	25,637.7	\$ 16,395.1	\$	-	\$	819.8	22.7
Commercial & Industrial									
Large Commercial New Construction	3.65	\$	22,855,9	\$ 5,335.7	\$	920.2			4.2
Large Commercial Retrofit	3.90	\$	147,525.3	\$ 23,801.3	\$	14.065.2			4.6
Small Business Direct Install	1.94	\$	19,379.9	\$ 7.568.6	\$	2,439.0			7.9
Commercial ConnectedSolutions	13.01	\$	27,031.2	\$ 2,078.5		,			
Commercial Pilots		7		\$ 106.3	\vdash				
Community Based Initiatives - C&I				\$ 66.1					
Finance Costs				\$ 5,216.7	1				
C&I SUBTOTAL	3.40	\$	216,792.2	\$ 44,173.2	\$	17,424.4	\$	2,092.2	5.6
Regulatory					-				
OER				\$ 893.7	t				
EERMC				\$ 893.7	1				
Regulatory SUBTOTAL				\$ 1,787.4	1				
TOTAL	2.48	\$	322,098,3	\$ 	\$	18,470.6	\$	5,067.4	8.3

- $(1)\ TRC\ B/C\ Test = (Energy + Capacity + Resource\ Benefits)\ /\ (Program\ Implementation + Customer\ Contribution + Performance\ Incentive)$ Also includes effects of free-ridership and spillover.
- (2) For Implementation Expenses derivation, see Table E-3.
- (3) ENERGY STAR® Lighting customer cost is negative due to a high free-ridership rate. Any financial incentives paid to free-riders are counted as a cost because the Company incurred those costs as part of the overall cost of the Plan regardless of whether the participant is free-rider or not. Therefore the Company reduces benefits and the customer cost by the net-to-gross ratio but not the incentives.

Table E-9 National Grid 2020 Targeted Performance Incentive

Core Performance Incentive Mechanism

Energy Incentive Rate

Energy incentive Rate.	3.11070						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Spending	Target			Target	Maximum	Maximum
	Budget	Incentive	Annual MWh	Threshold	Incentive Per	MWh Savings	Incentive
Sector	\$(000)	\$(000)	Savings Target	MWh Savings	MWh	(Earnings)	\$(000)
Income Eligible Residential	\$16,395	\$510.8	5,979	4,484	\$85.4	7,474	\$639
Non-Income Eligible Residential	\$43,107	\$1,343.1	77,748	58,311	\$17.3	97,185	\$1,679
Commercial & Industrial	\$41,845	\$1,303.7	94,198	70,649	\$13.8	117,748	\$1,630
Total	\$101,347	\$3,157.7	177,926	133,444	\$17.7	222,407	\$3,947

Demand Incentive Rate: 1.335%

Demand Incomite Itale.	1.000,0						
	(8)	(9)	(10)	(11)	(12)	(13)	(14)
						Maximum	
	Spending	Target			Target	Annual kW	Maximum
	Budget	Incentive	Annual kW	Threshold kW	Incentive Per	Savings	Incentive
Sector	\$(000)	\$(000)	Savings Target	Savings	kW	(Earning)	\$(000)
Income Eligible Residential	\$16,395	\$218.9	721	541	\$303.8	901	\$274
Non-Income Eligible Residential	\$43,107	\$575.6	11,675	8,757	\$49.3	14,594	\$720
Commercial & Industrial	\$41,845	\$558.7	17,463	13,097	\$32.0	21,829	\$698
Total	\$101,347	\$1,353.3	29,859	22,395	\$45.3	37,324	\$1,692

Delivered Fuels Performance Incentive Mechanism

Delivered Fuel Measures Incentive Rate:	0.549%								
	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
							Target		
						Threshold Net	Incentive Per		
					Net Annual All-	Annual All-	Total Net	Maximum	
	Spending	Total Target	Total Target	Target	Fuel Energy	Fuel Energy	Annual	Annual Energy	Maximum
	Budget	Incentive	Incentive Split	Incentive	Savings Target	Savings	Adjusted	Savings	Incentive
Sector	\$(000)	\$(000)	to Sectors	\$(000)	(MMBtu)	(MMBtu)	MMBtu	(Earning)	\$(000)
Income Eligible Residential	\$16,395		27.6%	\$153	8,483	5,090	\$18.1	12,725	\$230
Non-Income Eligible Residential	\$43,107		72.4%	\$403	31,197	18,718	\$12.9	46,795	\$605
Commercial & Industrial	\$41,845		N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	\$101,347	\$556	100.0%	\$556	39,680	23,808	\$14.0	59,520	\$835

Notes on Core Performance Incentive Mechanism

- (1) (8) and (15) Eligible Spending Budget excludes Commitments, Regulatory Costs, Pilots, Assessments, Residential ConnectedSolutions, Commercial ConnectedSolutions, Performance Incentive, See Column 6 in Table E-3 for details,
- (2) Equal to the incentive rate (3.116%) x Column (1).
- (3) Equal to the MWh for each sector as in Table E-6a, reduced by MWh savings for the delivered fuel measures that are accounted for in the calculation of (19) from the EnergyStar® HVAC, EnergyWise, and Single Family Income Eligible Services programs. Note that at the sector and total level these values differ from what is shown in Table E-6a because of the subtraction of savings attributable to the delivered fuel measures in (19)
- (4) and (11) 75% of Column (3) and (8), respectively. No incentive is earned on annual MWh or annual kW in the sector unless the Company achieves at least this threshold level of performance
- (5) Column (2)*1000/Column (3). This illustration is for achieved savings equal to the savings target. The incentive earned per annual MWh will vary with the percent of the savings target achieved.
- (6) and (13) 125% of (3) and (10), respectively. The maximum savings at which the Company can earn <math>6.25% of (1) and (8).
- (7) and (14) The maximum incentive that the Company would earn at savings levels in (6) and (13).
- (9) Equal to the incentive rate (1.335%) x Column (8).
- (10) Equal to the kW for each sector as in Table E-6a.
- (12) Column (9)*1000/Column (10). This illustration is for achieved savings equal to the savings target. The incentive earned per kW will vary with the percent of the savings target achieved.
- Core Mechanism: The Performance Incentive for Energy (MWh) and Demand (kW) incentives will be calculated as follows, where SB is the Spending Budget in the sector:
- From 75% of savings to 100% of savings: Performance Incentive = SB x (1.25% + (% of Savings Achieved 75%) x 0.15)
- x 0.623 for electric energy savings
 x 0.267 for electric demand savings
- From 100% of savings to 125% of savings: Performance Incentive = SB x (5.00% + (% of Savings Achieved 100%) x 0.05)
- x 0.623 for electric energy savings
- x 0.267 for electric demand savings

Notes on Delivered Fuel Performance Incentive Mechanism

- (16) Equal to the incentive rate (0.549%) x Column (15) in the total row. Note that the PI target for the delivered fuels PI mechanism is set at the total level.
- (17) Total Incentive Split to sectors allocates the Total Target Incentive in (16) to the Income Eligible Residential and Non-Income Eligible Residential sectors in proportion to their spending budgets. Note that the Commercial & Industrial sector does not have a distribution factor because there are no delivered fuels measures from this sector included in this performance incentive mechanism
- (18) Equal to the Total Target Incentive (16) multipled by the applicable Total Incentive Distribution Factor (17).
- (19) Equal to the all-fuel energy savings (MMBtu) as in Table E-6a for weatherization of delivered fuel homes and electrification of heating for homes served by delivered fuels from the EnergyStar® HVAC, EnergyWise, and Single Family - Income Eligible Services programs.
- (20) 60% of Column (19). No incentive is earned on annual all-fuel MMBtu in the sector unless the Company achieves at least this threshold level of performance.
- (21) Column (18)*1000/Column (19). This illustration is for achieved savings equal to the savings target. The incentive earned per MMBtu will vary with the percent of the savings target achieved.
- (22) The maximum savings at which the company can earn 150% of the target incentive
- (23) The maximum incentive that the company would earn at savings level in (22).

Delivered Fuels Mechanism: The Performance Incentive for Delivered Fuel Weatherization and Fuel-Switching Heat Pumps (MMBtu) will be calculated as follows, where SB is the Spending Budget in the sector:

- From 60% of savings to 100% of savings: Performance Incentive = SB x (2.25% + (% of Savings Achieved 60%) x 0.0688)
 x 0.110 for electric sector delivered fuel savings
- From 100% of savings to 150% of savings: Performance Incentive = SB x (5.00% + (% of Savings Achieved 100%) x 0.05)
- · x 0.110 for electric sector delivered fuel savings
- Performance Incentive is capped at 7.50% above 150% of savings

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Table E-11 National Grid Rhode Island Electric Energy Efficiency 2003 - 2020 \$(000)

Electric	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013 ⁽⁴⁾	2014	2015	2016	2017	2018	2019(5)	2020(6)
Energy Efficiency Budget (\$Million) ⁽¹⁾	\$23.1	\$22.6	\$23.1	\$22.4	\$22.5	\$21.0	\$32.4	\$37.6	\$59.2	\$61.4	\$77.5	\$87.0	\$86.6	\$87.5	\$94.6	\$94.6	\$107.5	\$111.4
Spending Budget (\$Million) ⁽²⁾	\$16.3	\$15.8	\$17.6	\$16.5	\$16.4	\$14.7	\$23.5	\$28.8	\$45.3	\$55.3	\$64.8	\$80.6	\$77.3	\$77.6	\$88.5	\$88.7	\$98.1	\$101.3
Actual Expenditures (\$Million) ⁽³⁾	\$22.8	\$19.5	\$23.4	\$23.7	\$21.9	\$19.2	\$31.7	\$29.7	\$40.0	\$50.7	\$72.9	\$85.3	\$87.4	\$78.4	\$94.8	\$93.0	-	
Incentive Percentage	4.4%	4.4%	4.4%	4.4%	4.4%	4.4%	4.4%	4.4%	4.4%	4.4%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Target Incentive ⁽⁹⁾	\$712,557	\$781,959	\$774,689	\$726,627	\$723,000	\$647,689	\$1,035,943	\$1,267,043	\$1,992,513	\$2,434,131	\$3,240,747	\$4,032,000	\$3,867,400	\$3,878,087	\$4,425,528	84,436,022	\$4,905,009 \$	5,067,353
Earned Incentive	\$712,557	\$604,876	\$795,648	\$760,623	\$716,075	\$675,282	\$1,085,888	\$1,333,996	\$1,929,273	\$2,469,411	\$2,997,681	\$4,223,321	\$4,533,360	\$4,128,034	\$4,829,847	\$4,940,402		
Annual Summer Demand kW Savings Goal Achieved (%)				106%	106%	113%	142%	78%	71%	83%	114%	78%	112%	101%	103%	116%		
Annual MWh Energy Savings Goal Achieved (%)				111%	102%	111%	115%	107%	94%	93%	99%	105%	115%	107%	115%	110%		
Energy Efficiency Program Charge (\$/kWh) ⁽⁷⁾	\$0.00200	\$0.00200	\$0.00200	\$0.00200	\$0.00200	\$0.00200	\$0.00320	\$0.00320	\$0.00526	\$0.00592	\$0.00876	\$0.00911	\$0.00953	\$0.01077	\$0.01124	\$0.00972	\$0.01121	\$0.01327
Annual Cost to 500 kWh/month Residential Customer w/o tax ⁽⁸⁾	\$12.00	\$12.00	\$12.00	\$12.00	\$12.00	\$12.00	\$19.20	\$19.20	\$31.56	\$35.52	\$52.56	\$54.66	\$57.18	\$64.62	\$67.44	\$58.32	\$67.26	\$79.62
Annual Cost to 500 kWh/month Residential Customer w/ tax ⁽⁹⁾	\$12.50	\$12.50	\$12.50	\$12.50	\$12.50	\$12.50	\$20.00	\$20.00	\$32.88	\$37.00	\$54.75	\$56.94	\$59.56	\$67.31	\$70.25	\$60.75	\$70.06	\$82.94

- (1) Energy Efficiency Budget includes total expenditures and commitments. Includes all demand side management program-related expenses, including rebates, administration and general expenses, evaluation, commitments for future years and Company incentive.
- (2) Prior to 2017, Spending Budget Eligible for Shareholder Incentive includes: Implementation, Administration, General, and Evaluation Expenses; excludes EERMC and OER Costs, Commitments, Copays, and Outside Finance Costs. Beginning in 2017, Outside Finance Costs were also included. Beginning in 2018 Pilot expenses were also excluded. Beginning in 2019 Connected Solutions expenses and assessments were also excluded.
- (3) Actual Expenditures is actual spend during calendar year. Includes expenditures and commitments. Includes all demand side management program-related expenses, including rebates, administration and general expenses, evaluation, commitments for future years and Company incentive.
- (4) In the Company's gas and electric rate cases in docket 4323, the PUC approved the uncollectibles gross-up in the electric EE Program Charge effective February 1, 2013, and a new rate applicable to the gross-up of the gas EE Program Charge, effective February 1, 2013.
- (5) 2019 values are planned.
- (6) 2020 values are proposed.
- (7) Beginning in 2012, the EE Program Charge includes the System Reliability Factor. It does not include the \$0.0003 renewables per RI General Laws \$39-2-1.2 and Order #19608, which appears on customer
- (8) Reflects the annual cost excluding Gross Earnings Tax.
- (9) Reflects the annual cost including Gross Earnings Tax.

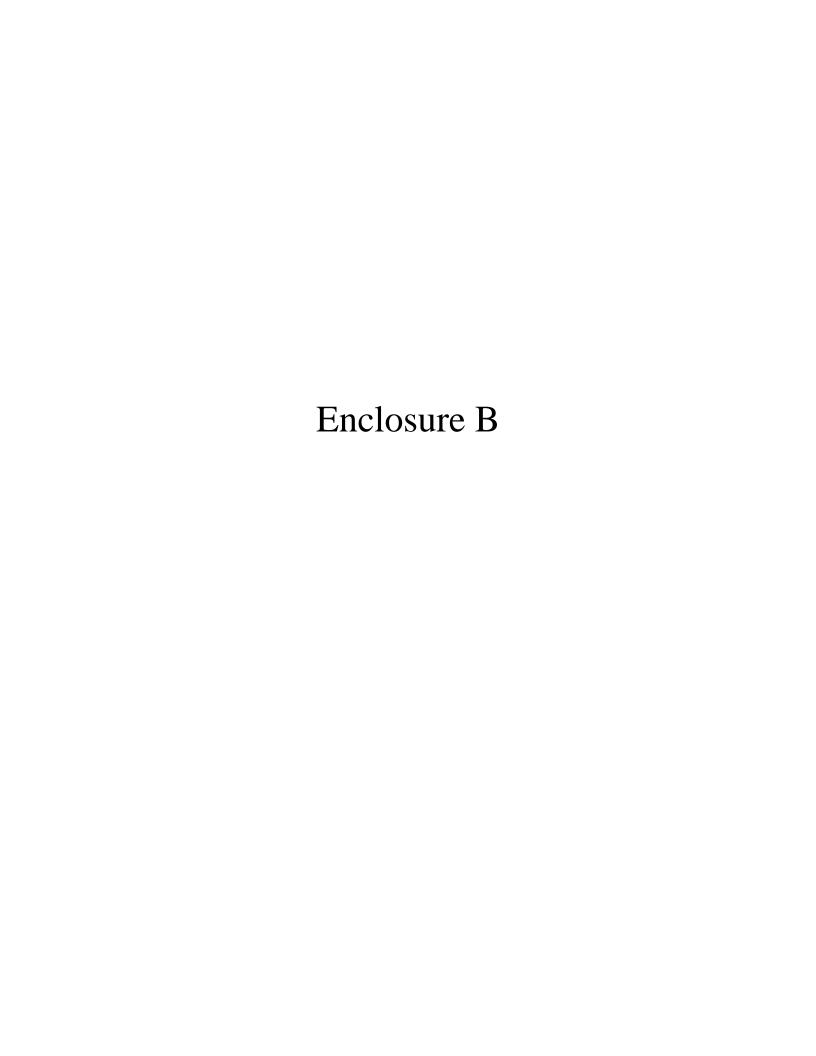


Table G-1 National Grid Gas DSM Funding Sources in 2020 by Sector \$(000)

	<u>Proje</u>	ections by Secto	<u>r</u>	
(1) Projected Budget (from G-2):	Income Eligible Residential \$9,438.0	Non-Income Eligible Residential \$14,561.8	Commercial & Industrial \$10,349.2	Total \$34,349.0
Sources of Other Funding:				
(2) Estimated Year-End 2019 Fund Balance and Interest:	\$0.00	(\$1,938.4)	\$795.0	(\$1,143.4)
(3) Low Income Weatherization in Base Rates:	\$200.00			\$200.00
(4) Total Other Funding:	\$200.0	(\$1,938.4)	\$795.0	(\$943.4)
(5) Customer Funding Required:	\$9,238.0	\$16,500.1	\$9,554.2	\$35,292.4
(6) Forecasted Firm Dth Volume(7) Forecasted Non Firm Dth Volume(8) Less: Exempt DG Customers	1,642,252	18,711,597	21,398,433 1,890,001 (1,470,931)	41,752,282 1,890,001 (1,470,931)
(9) Forecasted Dth Volume:	1,642,252	18,711,597	21,817,504	42,171,352
Average Energy Efficiency Program Charge per Dth (10) excluding Uncollectible Recovery:				\$0.836
Proposed Energy Efficiency Program Charge per Dth (11) excluding Uncollectible Recovery	\$0.992	\$0.992	\$0.691	
(12) Currently Effective Uncollectible Rate	<u>1.91%</u>	<u>1.91%</u>	1.91%	
Proposed Energy Efficiency Program Charge per (13) Dth including Uncollectible Recovery:	\$1.011	\$1.011	\$0.704	
Currently Effective Energy Efficiency Program Charge (14) per Dth	\$0.715	\$0.715	\$0.420	
Adjustment to Reflect Fully Reconciling Funding (15) Mechanism	\$0.296	\$0.296	\$0.284	

⁽¹⁾ Projected Budget from G-2 includes OER and EERMC costs allocated to each sector based on forecasted volume.

⁽²⁾ Fund Balance projections include projected revenue and spend through year-end with Residential and C&I sector subsidies applied to Income Eligible as detailed in the 2020 EE Plan Table G-1. The Company proposes to refile this table with updated Fund Balance projections on December 2, 2019 as proposed in Section 4.b. of the Plan's Main Text.

⁽¹¹⁾ As agreed to by the settling parties, the proposed EE program charges allow for the use of collections from one sector to fund energy efficiency services in other sectors that would otherwise not be supported with the proposed collection rates. The C&I charge includes collection of \$5.1 million of which \$4.5 million will be allocated to the low income sector and \$0.6 million to the residenttial sector. (12) Uncollectible rate approved in Docket No. 4770.

Table G-2 National Grid 2020 Gas Energy Efficiency Program Budget (\$000)

	Program		Rebates and	Sales, Technical			
	Planning and		Other Customer	Assistance and	Evaluation &	Performance	
	Administration	Marketing	Incentives	Training	Market Research	Incentive	Grand Total
Non-Income Eligible Residential:		_		_			
ENERGY STAR® HVAC	\$83.6	\$172.3	\$2,126.8	\$273.1	\$37.3	\$0.0	\$2,693.1
EnergyWise	\$217.7	\$89.6	\$6,615.5	\$963.8	\$231.1	\$0.0	\$8,117.6
EnergyWise Multifamily	\$52.3	\$35.8	\$1,216.0	\$152.1	\$55.9	\$0.0	\$1,512.1
Home Energy Reports	\$18.2	\$1.3	\$423.5	\$5.0	\$23.5	\$0.0	\$471.5
Residential Pilots	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Residential New Construction	\$32.0	\$3.6	\$466.6	\$109.2	\$9.1	\$0.0	\$620.5
Comprehensive Marketing - Residential	\$0.2	\$79.7	\$0.0	\$0.0	\$0.0	\$0.0	\$79.9
Community Based Initiatives - Residential	\$9.8	\$30.9	\$28.1	\$0.0	\$0.0	\$0.0	\$68.9
Residential Performance Incentive	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$677.7	\$677.7
Subtotal - Non-Income Eligible Residential	\$413.7	\$413.3	\$10,876.4	\$1,503.2	\$356.9	\$677.7	\$14,241.2
Income Eligible Residential:							
Single Family - Income Eligible Services	\$149.4	\$36.8	\$4,510.0	\$1,166.4	\$89.7	\$0.0	\$5,952.3
Income Eligible Multifamily	\$84.8	\$13.3	\$2,474.5	\$309.7	\$127.3	\$0.0	\$3,009.5
Income Eligible Performance Incentive	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$448.1	\$448.1
Subtotal - Income Eligible Residential	\$234.2	\$50.1	\$6,984.5	\$1,476.0	\$217.0	\$448.1	\$9,409.9
Commercial & Industrial							
Large Commercial New Construction	\$70.3	\$165.3	\$1,312.8	\$786.6	\$317.5	\$0.0	\$2,652.6
Large Commercial Retrofit	\$222.7	\$274.1	\$2,482.3	\$1,645.6	\$264.4	\$0.0	\$4,889.1
Small Business Direct Install	\$3.4	\$37.9	\$50.0	\$30.1	\$3.6	\$0.0	\$125.0
Commercial & Industrial Multifamily	\$26.2	\$23.7	\$756.0	\$119.2	\$42.8	\$0.0	\$967.9
Commercial Pilots	\$54.2	\$9.5	\$266.8	\$35.5	\$0.0	\$0.0	\$366.0
Finance Costs	\$0.0	\$0.0	\$500.0	\$0.0	\$0.0	\$0.0	\$500.0
Community Based Initiatives - C&I	\$3.3	\$9.4	\$9.4	\$0.0	\$0.0	\$0.0	\$22.0
Commercial & Industrial Performance Incentive	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$452.8	\$452.8
Subtotal - Commercial & Industrial	\$380.2	\$520.0	\$5,377.3	\$2,617.0	\$628.2	\$452.8	\$9,975.5
Regulatory							
EERMC	\$361.2	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$361.2
OER	\$361.2	\$0.0		\$0.0	\$0.0	\$0.0	\$361.2
Subtotal - Regulatory	\$722.4	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$722.4
Grand Total	\$1,750.5	\$983.4	\$23,238.2	\$5,596.3	\$1,202.1	\$1,578.6	\$34,349.0

- (1) OER and EERMC is equal to 2% of total collections from customers' Energy Efficiency Program Charge, reduced by 2%.
- (2) Finance Costs include a transfer of \$0.5 million to the Company's revolving loan funds
- (3) \$0 is included in 2020 OER budget for Evaluation and Market Research to comply with Senate Bill 2500, enacted in June 2018. The law requires the OER to hire an energy consulting company or firm to review and confirm reported energy savings.
- (4) Demonstrations are included in specific program level budgets listed above. More information on Demonstration descriptions, budgets, and which program level budget they are included in can be found in Attachment 8. No Gas Assessments are planned in 2020.

Table G-3 National Grid Derivation of the 2020 Spending & Implementation Budgets (\$000)

	Proposed 2020 Budget From G-2 (\$000)	Outside Finance and Stakeholder Oversight Costs (\$000)	Performance Incentive (\$000)	Eligible Sector Spending Budget for Performance Incentive on G-9 (\$000)1	Implementation Expenses for Cost-Effectiveness on G-5 (\$000) ²
Non-Income Eligible Residential					
ENERGY STAR® HVAC	\$ 2,693.1		\$ -		\$ 2,693.1
EnergyWise	\$ 8,117.6		\$ -		\$ 8,117.6
EnergyWise Multifamily	\$ 1,512.1		\$ -		\$ 1,512.1
Home Energy Reports	\$ 471.5		\$ -		\$ 471.5
Residential Pilots	\$ -		\$ -		\$ -
Residential New Construction	\$ 620.5				\$ 620.5
Comprehensive Marketing - Residential	\$ 79.9		\$ -		\$ 79.9
Community Based Initiatives - Residential	\$ 68.9		\$ -		\$ 68.9
Residential Performance Incentive	\$ 677.7		\$ 677.7		\$ -
Subtotal - Non-Income Eligible Residential	\$ 14,241.2	\$ -	\$ 677.7	\$ 13,553.6	\$ 13,563.6
Income Eligible Residential					
Single Family - Income Eligible Services	\$ 5,952.3		\$ -		\$ 5,952.3
Income Eligible Multifamily	\$ 3,009.5		\$ -		\$ 3,009.5
Income Eligible Performance Incentive	\$ 448.1		\$ 448.1		\$ -
Subtotal - Income Eligible Residential	\$ 9,409.9	\$ -	\$ 448.1	\$ 8,961.8	\$ 8,961.8
Commercial & Industrial					
Large Commercial New Construction	\$ 2,652.6		\$ -		\$ 2,652.6
Large Commercial Retrofit	\$ 4,889.1		\$ -		\$ 4,889.1
Small Business Direct Install	\$ 125.0		\$ -		\$ 125.0
Commercial & Industrial Multifamily	\$ 967.9		\$ -		\$ 967.9
Commercial Pilots	\$ 366.0		\$ -		\$ 366.0
Finance Costs	\$ 500.0	\$ 500.0	\$ -		\$ 500.0
Community Based Initiatives - C&I	\$ 22.0		\$ -		\$ 22.0
Commercial & Industrial Performance Incentive	\$ 452.8		\$ 452.8		\$ -
Subtotal - Commercial & Industrial	\$ 9,975.5	\$ 500.0	\$ 452.8	\$ 9,056.6	\$ 9,522.7
Regulatory					
EERMC	\$ 361.2	\$ 361.2			\$ 361.2
OER	\$ 361.2	\$ 361.2			\$ 361.2
Subtotal - Regulatory	\$ 722.4	\$ 722.4	\$ -		\$ 722.4
Grand Total	\$ 34,349.0	\$ 1,222.4	\$ 1,578.6	\$ 31,572.0	\$ 32,770.4

- (1) Eligible Sector Spending Budget for Performance Incentive = Budget from G-2 minus Regulatory Costs, Pilots, Assessments, and Performance Incentive
- (2) Implementation Expenses = Budget from G-2 minus Performance Incentive
- (3) Eligible Sector Spending Budget does not include assessments, see Attachment 8 for assessments budgets. No Gas Assessments are planned in 2020.

Table G-4 National Grid Proposed 2020 Budget Compared to Approved 2019 Budget (\$000)

	Pro	posed Budget	2019	Approved		
		020 from G-2		as Budget	D	ifference
Non-Income Eligible Residential						
ENERGY STAR® HVAC	\$	2,693.1	\$	2,164.9	\$	528.2
EnergyWise	\$	8,117.6	\$	8,466.3	\$	(348.6)
EnergyWise Multifamily	\$	1,512.1	\$	1,677.5	\$	(165.5)
Home Energy Reports	\$	471.5	\$	447.9	\$	23.6
Residential Pilots	\$	-	\$	-	\$	-
Residential New Construction	\$	620.5	\$	737.6	\$	(117.2)
Comprehensive Marketing - Residential	\$	79.9	\$	73.7	\$	6.2
Community Based Initiatives - Residential	\$	68.9	\$	39.0	\$	30.0
Residential Performance Incentive	\$	677.7	\$	680.3	\$	(2.7)
Subtotal - Non-Income Eligible Residential	\$	14,241.2	\$	14,287.2	\$	(46.0)
Income Eligible Residential						
Single Family - Income Eligible Services	\$	5,952.3	\$	5,012.8	\$	939.5
Income Eligible Multifamily	\$	3,009.5	\$	2,932.7	\$	76.8
Income Eligible Performance Incentive	\$	448.1	\$	397.3	\$	50.8
Subtotal - Income Eligible Residential	\$	9,409.9	\$	8,342.8	\$	1,067.1
Commercial & Industrial						
Large Commercial New Construction	\$	2,652.6	\$	2,389.2	\$	263.4
Large Commercial Retrofit	\$	4,889.1	\$	4,214.0	\$	675.1
Small Business Direct Install	\$	125.0	\$	124.4	\$	0.6
Commercial & Industrial Multifamily	\$	967.9	\$	918.4	\$	49.6
Commercial Pilots	\$	366.0	\$	381.1	\$	(15.1)
Finance Costs	\$	500.0	\$	-	\$	500.0
Community Based Initiatives - C&I	\$	22.0	\$	13.0	\$	9.0
Commercial & Industrial Performance Incentive	\$	452.8	\$	383.0	\$	69.9
Subtotal Commercial & Industrial	\$	9,975.5	\$	8,423.1	\$	1,552.4
Regulatory						
EERMC	\$	361.2	\$	235.5	\$	125.7
OER	\$	361.2	\$	304.2	\$	57.0
Subtotal Regulatory	\$	722.4	\$	539.7	\$	182.7
TOTAL BUDGET	\$	34,349.0	\$	31,592.8	\$	2,756.2

- (1) Program Implementation Budget excludes Commitments, Company Incentive; derived on Table G-3
- (2) Total Budget includes Implementation, Commitments; illustrated on Table G-3
- (3) Finance Costs include a transfer of \$0.5 million to the Company's revolving loan funds.

Table G-5 National Grid Calculation of 2020 Program Year Cost-Effectiveness All Dollar Values in (\$000)

	Rhode Island			Program						
	Benefit/	Total	Im	plementation		Customer	Sh	areholder	١ :	\$/Lifetime
	Cost	Benefit		Expenses	(Contribution	1	ncentive		MMBtu
Non-Income Eligible Residential				•						
Energy Star® HVAC	1.56	\$ 9,802.0	\$	2,693.1	\$	3,609.6			\$	12.71
EnergyWise	2.04	\$ 20,472.6	\$	8,117.6	\$	1,923.5			\$	16.51
EnergyWise MultiFamily	5.24	\$ 9,734.3	\$	1,512.1	\$	344.0			\$	8.25
Home Energy Reports	4.11	\$ 1,940.0	\$	471.5	\$	-			\$	4.08
Residential New Construction	1.00	\$ 1,250.7	\$	620.5	\$	635.9			\$	15.14
Comprehensive Marketing - Residential			\$	79.9						
Community Based Initiatives - Residential			\$	68.9						
Residential Pilots			\$	-						
Non-Income Eligible Residential Subtotal	2.08	\$ 43,199.5	\$	13,563.6	\$	6,513.0	\$	677.7	\$	13.14
-				·						
Income Eligible Residential										
Single Family - Income Eligible Services	2.90	\$ 17,254.2	\$	5,952.3	\$	-			\$	29.48
Income Eligible Multifamily	5.71	\$ 17,195.1	\$	3,009.5	\$	-			\$	6.72
Income Eligible Residential Subtotal	3.66	\$ 34,449.3	\$	8,961.8	\$	-	\$	448.1	\$	13.79
Large Commercial & Industrial		15.50	Φ.	2 5 7 2 5	ф	125.2			ф	205
Large Commercial New Construction	5.76	\$ 17,726.9	\$	2,652.6	\$	425.3			\$	3.96
Large Commercial Retrofit	6.08	\$ 42,966.3	\$	4,889.1	\$	2,182.5			\$	4.19
Small Business Direct Install	4.28	\$ 621.9	\$	125.0	\$	20.4			\$	8.23
Commercial & Industrial Multifamily	4.26	\$ 4,476.1	\$	967.9	\$	84.0			\$	6.76
Commercial Pilots			\$	366.0						
Community Based Initiatives - C&I			\$	22.0						
Finance Costs			\$	500.0						
Commercial & Industrial Subtotal	5.19	\$ 65,791.3	\$	9,522.7	\$	2,712.3	\$	452.8	\$	4.64
Regulatory										
EERMC			\$	361.2						
OER			\$	361.2						
Regulatory Subtotal			\$	722.4						
Grand Total	3.29	\$ 143,440.1	\$	32,770.4	\$	9,225.3	\$	1,578.6	\$	8.72

Notes:

 $(1)\ RI\ Test\ B/C\ Test\ = (Energy+Capacity+Resource\ Benefits+Economic\ Benefits+Carbon\ Benefits)\ /\ (Program\ Implementation+Customer\ Contribution+Performance\ Incentive)$

Also includes effects of free-ridership and spillover.

(2) For Implementation Expenses derivation, see Table G-3.

Table G-5A National Grid Calculation of 2019 Program Year Cost-Effectiveness with TRC Test All Dollar Values in (\$000)

Γ	TRC			Program					
	Benefit/	Total	In	plementation		Customer	S	Shareholder	\$/Lifetime
	Cost	Benefit		Expenses	C	Contribution	~	Incentive	MMBtu
Non-Income Eligible Residential									
Energy Star® HVAC	0.85	\$ 5,368.7	\$	2,693.1	\$	3,609.6			\$ 12.71
EnergyWise	0.95	\$ 9,580.4	\$	8,117.6	\$	1,923.5			\$ 16.51
EnergyWise MultiFamily	3.38	\$ 6,275.4	\$	1,512.1	\$	344.0			\$ 8.25
Home Energy Reports	1.90	\$ 897.8	\$	471.5	\$	-			\$ 4.08
Residential New Construction	0.60	\$ 755.3	\$	620.5	\$	635.9			\$ 15.14
Comprehensive Marketing - Residential			\$	79.9					
Community Based Initiatives - Residential			\$	68.9					
Residential Demonstration and R&D			\$	-					
Non-Income Eligible Residential Subtotal	1.10	\$ 22,877.7	\$	13,563.6	\$	6,513.0	\$	677.7	\$ 13.14
Income Eligible Residential									
Single Family - Income Eligible Services	1.76	\$ 10,449.0	\$	5,952,3	\$	_			\$ 29.48
Income Eligible Multifamily	3.52	\$ 10,582.4	\$	3,009.5	\$	-			\$ 6.72
Income Eligible Residential Subtotal	2.24	\$ 21,031.4	\$	8,961.8	\$	-	\$	448.1	\$ 13.79
Large Commercial & Industrial									
Large Commercial New Construction	3.42	\$ 10,525.6	\$	2,652.6	\$	425.3			\$ 3.96
Large Commercial Retrofit	3.25	\$ 22,991.2	\$	4,889.1	\$	2,182.5			\$ 4.19
Small Business Direct Install	2.21	\$ 321.5	\$	125.0	\$	20.4			\$ 8.23
Commercial & Industrial Multifamily	1.85	\$ 1,947.2	\$	967.9	\$	84.0			\$ 6.76
Commercial Demonstration and R&D			\$	366.0					
Community Based Initiatives - C&I			\$	22.0					
Finance Costs			\$	500.0					
Commercial & Industrial Subtotal	2.82	\$ 35,785.5	\$	9,522.7	\$	2,712.3	\$	452.8	\$ 4.64
Regulatory									
EERMC			\$	361.2					
OER			\$	361.2					
Regulatory Subtotal			\$	722.4					
Grand Total	1.83	\$ 79,694.6	\$	32,770.4	\$	9,225.3	\$	1,578.6	\$ 8.72

- $(1) \ TRC \ B/C \ Test = (Energy + Capacity + Resource \ Benefits) \ / \ (Program \ Implementation + Customer \ Contribution + Performance \ Incentive)$ Also includes effects of free-ridership and spillover.
- (2) For Implementation Expenses derivation, see Table G-3.

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Table G-9 National Grid 2020 Targeted Performance Incentive

Incentive Rate: 5.00%

meentive Rate.	5.0070					
	(1)	(2)	(3)	(4)	(5)	(6)
	Eligible		Savings			
	Spending	Target	Target	Threshold	Target Incentive	Maximum
	Budget	Incentive	(Annual	Savings	Per Annual	Incentive
Sector	\$(000)	\$(000)	MMBtu)	(MMBtu)	MMBtu	\$(000)
Income Eligible Residential	\$8,962	\$448.1	34,508	25,881	\$12.98	\$560.11
Non-Income Eligible Residential	\$13,554	\$677.7	189,948	142,461	\$3.57	\$847.10
Commercial & Industrial	\$9,057	\$452.8	222,164	166,623	\$2.04	\$566.04
Total	\$31,572	\$1,578.6	446,621	334,965	\$3.53	\$1,973.25

Notes:

- (1) Eligible Spending Budget excludes EERMC, OER, Pilots, Assessments, and Performance Incentive. See Table G-3 for details.
- (2) Equal to the incentive rate (5.0%) x Column (1).
- (3) See Table G-7
- (4) 75% of Column (3). No incentive is earned on annual MMBTU savings in the sector unless the Company achieves at least this threshold level of performance.
- (5) Column (2)*1000/Column (3). This illustration is for achieved savings equal to the savings target. The incentive earned per MMBtu will vary with the percent of the savings target achieved

The Performance Incentive will be calculated as follow, where SB is the Spending Budget in the sector:

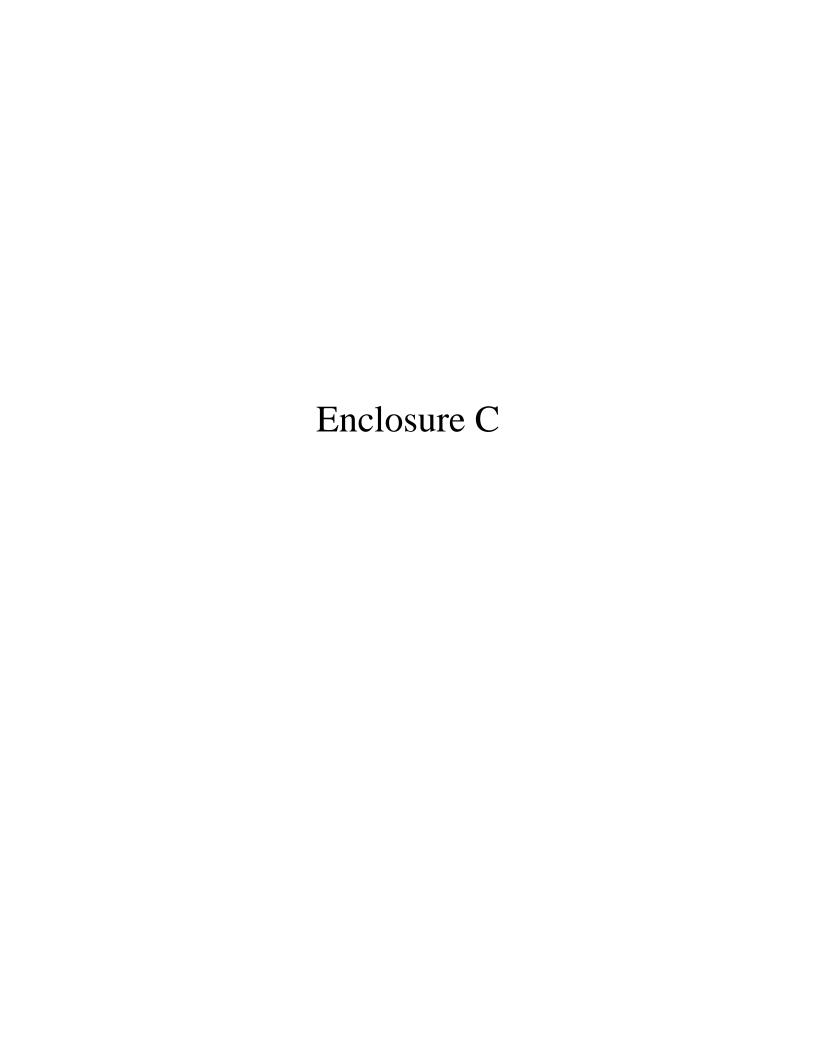
- From 75% of savings to 100% of savings: Performance Incentive = SB x (1.25% + (% of Savings Achieved 75%) x 0.15)
- From 100% of savings to 125% of savings: Performance Incentive = SB x (5.00% + (% of Savings Achieved 100%) x 0.05)

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Table G-11 National Grid Rhode Island Gas Energy Efficiency 2003 - 2020 \$(000)

Gas	2007(4)	2008	2009	2010	2011(5)	2012	2013 ⁽⁶⁾	2014	2015	2016	2017	2018	2019 ⁽⁷⁾	2020(8)
Energy Efficiency Budget (\$Million) ⁽¹⁾	-	\$7.3	\$7.6	\$4.8	\$7.3	\$13.7	\$19.5	\$23.5	\$24.5	\$27.7	\$29.7	\$28.1	\$31.6	\$34.3
Spending Budget (\$Million) ⁽²⁾	-	\$6.6	\$6.1	\$4.5	\$6.2	\$12.9	\$17.9	\$21.8	\$22.4	\$25.0	\$27.8	\$26.2	\$29.2	\$31.6
Actual Expenditures (\$Million) ⁽³⁾	-	\$7.4	\$6.3	\$5.5	\$4.9	\$13.3	\$19.6	\$21.5	\$21.5	\$24.6	\$29.1	\$28.8	-	-
Incentive Percentage	-	4.4%	4.4%	4.4%	4.4%	4.4%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Target Incentive	-	\$288,734	\$266,980	\$199,743	\$274,460	\$570,382	\$898,285	\$1,089,700	\$1,119,800	\$1,251,654	\$1,387,550	\$1,309,076	\$1,460,570	\$1,578,601
Earned Incentive	-	\$288,734	\$262,121	\$231,310	\$239,863	\$586,036	\$968,229	\$1,362,108	\$1,387,079	\$1,496,869	\$1,633,531	\$1,541,255		
Annual MMBtu Energy Savings Goal Achieved (%)		109%	139%	127%	117%	99%	109%	124%	111%	106%	113%	120%		
System Benefits Charge (\$/therm) - all non-exempt customers (11)	\$0.0071	\$0.0107	\$0.0150	\$0.0150	\$0.0411	\$0.0384	\$0.0417	-	-	-	-	-	-	
Residential System Benefits Chare (\$/therm)	-	-	-	-	-	-	-	\$0.0600	\$0.0781	\$0.0748	\$0.0888	\$0.0869	\$0.0715	\$0.1011
C&I System Benefits Charge (\$/therm)	-	-	-	-	-	-	-	\$0.0492	\$0.0637	\$0.0487	\$0.0726	\$0.0671	\$0.0420	\$0.0704
Annual Cost to 846 Therm/year Residential Customer w/o tax ⁽⁹⁾	\$6.04	\$9.05	\$12.69	\$12.69	\$18.28	\$32.49	\$35.28	\$50.76	\$66.07	\$63.28	\$75.12	\$73.52	\$60.49	\$85.53
Annual Cost to 846 Therm/year Residential Customer w/tax(10)	\$6.23	\$9.33	\$13.08	\$13.08	\$18.85	\$33.49	\$36.37	\$52.33	\$68.11	\$65.24	\$77.44	\$75.79	\$62.36	\$88.18

- (1) Energy Efficiency Budget includes total expenditures and commitments. Includes all demand side management program-related expenses, including rebates, administration and general expenses, evaluation, commitments for future years and Company incentive.
- (2) Prior to 2017, Spending Budget Eligible for Shareholder Incentive includes: Implementation, Administration, General, and Evaluation Expenses; excludes EERMC and OER Costs, Commitments, Copays, and Outside Finance Costs. Beginning in 2017, Outside Finance Costs were also included. Beginning in 2018 Pilot expenses were also excluded. Beginning in 2019 ConnectedSolutions expenses and assessment were also excluded.
- (3) Actual Expenditures is actual spend during calendar year. Includes expenditures and commitments. Includes all demand side management program-related expenses, including rebates, administration and general expenses, evaluation, commitments for future years and Company incentive.
- (4) Gas programs began during July 2007 and were not reported on separately that year since programs were still in development. The 2007 gas programs are included in 2008 reporting. Systems Benefit Charge shown for 2007 is the weighted average of \$0.063 per decatherm from January 1, 2007 June 30, 2007 and \$0.107 per decatherm from July 1, 2007 through December 31, 2008.
- (5) On July 25, 2011 the Commission ordered that National Grid could increase the gas System Benefits Charge from \$0.15 to \$0.411 per decatherm for the period of August 1, 2011 through December 31, 2011. Annual cost represents 7 months usage (632 therms) at \$0.015 per therm and 5 months usage (214 therms) at \$0.0411 per therm.
- (6) In the Company's gas and electric rate cases in docket 4323, the PUC approved the uncollectibles gross-up in the electric EE Program Charge effective February 1, 2013, and a new rate applicable to the gross-up of the gas EE Program Charge, effective February 1, 2013.
- (7) 2019 values are planned.
- (8) 2020 values are proposed.
- (9) Reflects the annual cost excluding Gross Earnings Tax.
- (10) Reflects the annual cost including Gross Earnings Tax.
- (11) The Gas EE Program Charge was uniform for all customers until 2014, at which time the Company proposed and the PUC approved individual factors for the residential and C&I sectors.



Classification	Fuel	Name	C&I Programs	Duration	Budget*	Savings Estimatio n	Evaluation
Pilots	_			<u> </u>	<u>'</u>	<u> </u>	'
Net Zero	Elec.	Pathway to Zero Energy Buildings	N/A	2018- 2020	\$ 106,269	Unknown	Vendor Evaluation
Demonstration	S	-	•				
New Construction	Dual	Performance based Procurement (Accelerate Performance)	C&I New Construct- ion	2018- 2020	\$ 29,134	3 kWh/SF (approx.)	Vendor Evaluation
Industrial		Underutilized EE tech. on mechanical power transmission systems	C&I Retrofit	2018- 2020	\$ 251,693		Vendor Evaluation
mustra	Dual	SEM	C&I Retrofit	2018- 2020	\$ 395,200	1700 MWh	Independent Evaluation
	Dual	HVAC Lighting Controls Plus	C&I Retrofit	2020	\$ 237,513	1.8 kWh/SF (approx.)	Vendor Evaluation
TW/AC	Dual	Kitchen Exhaust	C&I Retrofit	2020	\$ 9,423	65 MWh	Vendor Evaluation
HVAC	Dual	Absorption Air Cleaning	C&I Retrofit	2020	\$ 85,423	0.453 kWh/SF	Vendor Evaluation
	Elec.	Small Business Heat Pumps	Small Business	2019- 2020	\$ 279,293	30 MWh	Independent Evaluation
Assessments	,					_	
Innovation**	Elec.	Innovative Electric	C&I Retrofit	2020	\$ 100,000	Unknown	To de determined
Lighting	Elec.	Emerging Lighting Market Interventions Secure Lighting Spec (SLS)	C&I New Construct- ion	2018- 2020	\$ 43,897	Unknown	Vendor Evaluation
Total Electric C					\$ 106,269		
Total Electric C					\$1,287,678		
Total Electric C	&IAss	sessments			\$ 143,897		

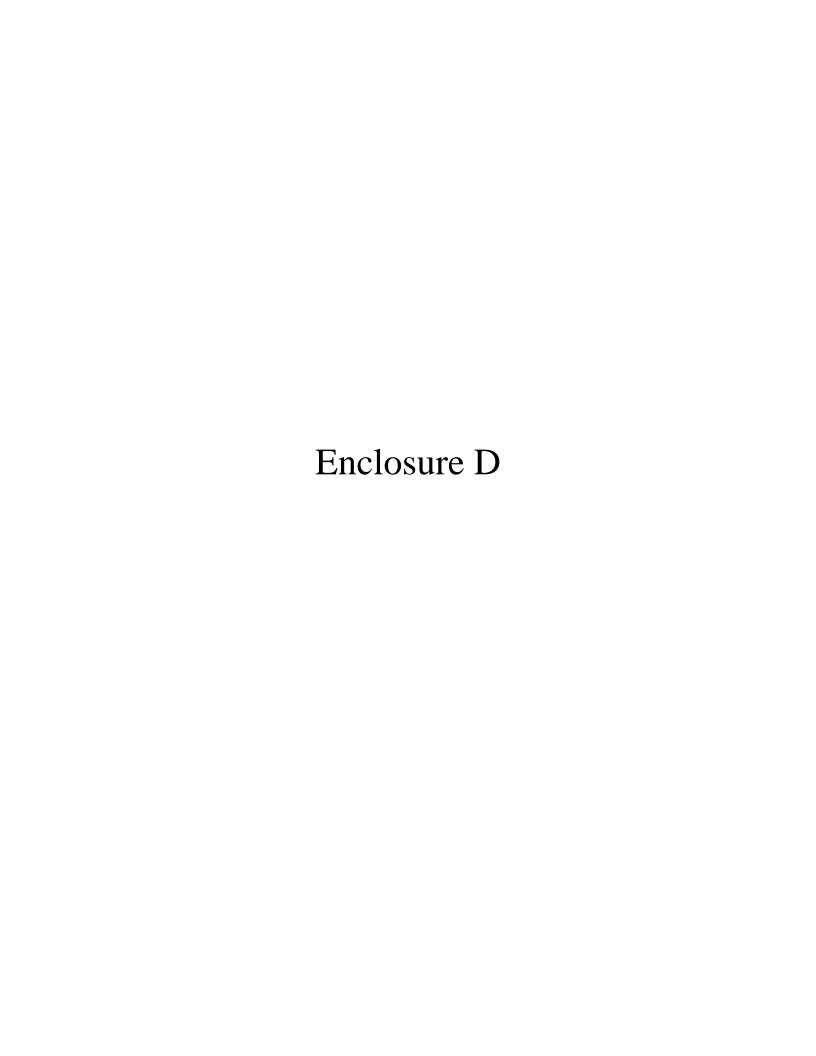
^{*}Budgets indicated in this table include, evaluation, incentives, program administration, sales, marketing, technical assistance and training (if applicable). Pilots and Assessments budgets are not included in Performance Incentive calculations.

^{**} Innovation budgets are for demonstrations that present opportunities mid-year. Please refer to the introduction section of Attachment 8 for details.

		ercial and Indust				,	E. L. di
Classification	Fuel	Name	C&I	Duration	Budget*	Savings	Evaluation
			Programs			Estimation	
Pilots		T					•
4 .: D I	Gas	Gas DR Pilot	N/A	2018-	\$ 366,015	78.5 DTherms	Vendor
Active Demand				2020		peak hour	Evaluation
Response							
Demonstrations	L						
	Dual	Performance based	C&I New	2018-	\$ 9,711	0.02 Therms/	Vendor
B.T		Procurement	Construct-	2020		SF(approx.)	Evaluation
New		(Accelerate	ion				
Construction		Performance)					
		,					
	Dual	SEM	C&I Retrofit	2018-	\$ 124,800	5410 Therms	Independent
Industrial				2020	,		Evaluation
	Dual	HVAC Lighting	C&I Retrofit		\$ 118,756	No Significant	Vendor
		Controls Plus			, ,,,,,,,,,	Savings	Evaluation
	Dual	Kitchen Exhaust	C&I Retrofit	2020	\$ 18,846	21,000 Therms	Vendor
					,		Evaluation
	Dual	Absorption Air	C&I Retrofit	2020	\$ 170,846	0.07 Therms/SF	Vendor
		Cleaning			,		Evaluation
	Gas	Gas Heat Pumps	C&I Retrofit	2020	\$ 27,269	15,000-20,000	No
		•			,	Therms (For a	Evaluation***
						400 – 600 mbh	
						unit)	
Assessments				1			
Innovation**	Gas	Innovative Gas	C&I Retrofit	2020	\$ 100,000	Unknown	To be
							determined
Total Gas C&I Pilo	ots				\$ 366,015		
Total Gas C&I Dei	monsti	ations			\$ 470,229		
Total Gas C&I Ass	sessme	ents			\$ 100,000		

- ** Innovation budgets are for demonstrations that present opportunities mid-year.
- *** The Gas Heat Pump demonstration will look to explore potential for this technology and at this time no evaluation budget or evaluation methodology has been determined for this demonstration. If this demonstration were to move forward to the next stage, evaluation methodology and budget will be allocated from the innovation budget with consultation from stakeholders(OER and EERMC Consultant Team)

^{*}Budgets indicated in this table include, evaluation, incentives, program administration, sales, marketing, technical assistance and training (if applicable). Pilots and Assessments budgets are not included in Performance Incentive calculations.



THE NARRAGANSETT ELECTRIC COMPANY
d/b/a NATIONAL GRID
RIPUC DOCKET NO. 4979
RE: ANNUAL ENERGY EFFICIENCY PLAN FOR 2020
WITNESSES: CHRISTOPHER PORTER AND MATTHEW RAY

SUPPLEMENTAL JOINT PRE-FILED DIRECT TESTIMONY

OF

CHRISTOPHER PORTER

AND

MATTHEW RAY

THE NARRAGANSETT ELECTRIC COMPANY d/b/a NATIONAL GRID RIPUC DOCKET NO. 4979 RE: ANNUAL ENERGY EFFICIENCY PLAN FOR 2020 WITNESSES: CHRISTOPHER PORTER AND MATTHEW RAY

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I. INTRODUCTION

19

1	1.	INTRODUCTION
2		<u>Christopher Porter</u>
3	Q.	Mr. Porter, please state your name and business address.
4	A.	My name is Christopher Porter. My business address is 40 Sylvan Road, Waltham,
5		Massachusetts 02451.
6		
7	Q.	Have you previously submitted testimony in this proceeding?
8	A.	Yes. I submitted joint direct testimony in this proceeding on October 15, 2019.
9		
10		Matthew Ray
11	Q.	Mr. Ray, please state your name and business address.
12	A.	My name is Matthew Ray. My business address is 280 Melrose Street, Providence,
13		Rhode Island 02907.
14		
15	Q.	Have you previously submitted testimony in this proceeding?
16	A.	Yes. I submitted joint direct testimony in this proceeding on October 15, 2019.
17		
18		

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1	II.	PURPOSE OF TESTIMONY
2	Q.	What is the purpose of this supplemental testimony?
3	A.	The purpose of our supplemental testimony is to correct the responses given to two
4		questions in our original pre-filed testimony filed on October 15, 2019. It is also to list
5		the new measures being proposed in the Company's 2020 Energy Efficiency Plan (Plan).
6		
7	III.	CORRECTION TO OCTOBER 15, 2019 TESTIMONY
8	Q.	Please describe the correction you wish to make to your October 15, 2019 joint
9		testimony filed in this proceeding?
10	A.	We wish to correct the responses to the following two questions:
11		(1) Are there any new measures being proposed with respect to the gas portfolio?
12		(Bates page 18, line 1 of the October 15, 2019 pre-filed testimony);
13		(2) Are there any new measures being proposed in the electric portfolio?
14		(Bates page 36, line 2 of the October 15, 2019 pre-filed testimony)
15		
16		The responses to both questions should be yes, the Company is proposing new measures
17		to existing programs in the 2020 Plan for both the gas and electric portfolios. These
18		measures are described below.

19

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IV. <u>NEW MEASURES</u>

Q. Please explain the new Energy Efficiency measures and the proposed budget for
 each measure.

A. <u>Residential Program/Measures:</u>

In the Electric Residential Energy Star Electric HVAC program, several of the proposed measures are being offered for the first time in 2020. These measures entail reducing customers' reliance upon oil/propane heating by supplementing or replacing fuel fired heating with high efficiency heat pumps (both mini-split and ducted heat pumps). The new offerings are based on three different configurations: (1) fully displacing a customer's current oil/propane; (2) using integrated controls to integrate with a customer's current oil/propane; and (3) integrating a customer's current oil/propane system without the use of integrated controls. These new measure offerings were designed to provide customers with options suited to their particular situations in order to encourage the transition from their current oil/propane to high efficiency electric heat. The list below includes the measure name and the total proposed incentive amount relevant to each measure.

CDHP Fully Displ Furnace, Oil - \$24,000

CDHP Fully Displ Furnace, Propane - \$6,000

CDHP PART DISPFURNACE, OIL - \$150,000

CDHP PART DISPFURNACE, PROP - \$9,000

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1	CDHP PART No Control DispFurnace, Prop - \$10,000
2	CDHP PART No Control DispFurnace, Oil - \$20,000
3	DMSHP FULL DISPBOILER, OIL - \$30,000
4	DMSHP FULL DISPBOILER, PROP - \$12,000
5	DMSHP woIC PART DispBoiler, Oil - \$100,000
6	DMSHP woIC PART DispBoiler, Prop - \$2,000
7	DMSHP WIC PART DISPBOILER, OIL - \$30,000
8	DMSHP WIC PART DISPBOILER, PROP - \$6,000
9	
10	In the Gas Residential Energy Star Heating System program, the following three
11	measures have been proposed in 2020: (1) Low_Flow_Showerhead; (2) Thermastatic
12	Shut-Off Valve; and (3) TSV-Showerheads. All three measures have been offered in
13	other programs such as the Energy Star Products program but are being added to the Gas
14	Residential Energy Star Heating System program for 2020. The primary driver for this
15	update is to categorize the savings that occur due to energy efficient gas water heating
16	updates as part of the gas program offerings. The list below includes the measure name
17	and the total planned incentive amount.
18	Low_Flow_Showerhead - \$325
19	Shut-Off Valve - \$288
20	TSV-Showerheads - \$525

21

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1	In the Electric Residential EnergyWise Single Family program, the measures listed below
2	have been added in 2020. While all of these measures are already being offered in the
3	EnergyWise programs, certain measures such as aerators, showerheads, programmable
4	thermostats, wifi thermostats and pipe insulation have been expanded to account for
5	specific heating fuel type. The list below includes the measure name and the total
6	planned incentive amount.
7	Aerator, Oil - \$70
8	Aerator, Others - \$70
9	Air Sealing Kit, Electric - \$200
10	Aerator, Others - \$200
11	Showerhead, Oil - \$3,200
12	Showerhead, Others - \$300
13	Programmable Thermostat, Others - \$10,000
14	Wifi thermostat, Oil - \$60,000
15	Wifi thermostat, Others - \$10,000
16	Wifi thermostat, AC only- \$0
17	Pipe Insulation, Oil - \$21,000
18	Pipe Insulation, Others - \$700
19	
20	
21	

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As technologies evolve and become more efficient, the Company responds to the marketplace by adopting and incentivizing new and/or higher efficient technologies within existing programs and sub-programs to drive even higher efficiency. The Company also discontinues incentives for the less efficient technologies, be it lighting, HVAC, or food service equipment, etc. For Large Commercial and Industrial programs and Small Business Direct Install programs, the Company plans at the Sub Program level (refer to Plan Attachment 10 for definitions), as shown on Plan Attachment 2, Section 12, Tables 1 & 2. Since incentive budgets and goals are set at the Sub Program level, the response below lists the new measures that fall within the listed Sub Program and indicates the goals and budgets for that Sub Program rather than the measure level.

- (1) Electric Large Commercial and Industrial Retrofit Program: Grocery Initiative New measures in 2020:
 - Destratification fans for colder spaces in stores
 - Variable speed drives on Kitchen Ventilation
 - Shelf edge infiltration reducers
 - Door condensation reduction film
 - High efficiency condenser fan motors with onboard controls
- CO2 Transcritical with natural refrigerant chillers
 - Stand-alone natural refrigerant cases

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1	• Thermal storage
2	The Grocery initiative contributes to the Large Commercial and Industrial Retrofit and
3	Large Commercial and Industrial New Construction programs for both gas and electric
4	
5	(2) Electric Large Commercial Retrofit Program- Upstream Lighting
6	New Measures added to Sub Program Upstream High/Low Bay in 2020:
7	• Parking Garage, 20-99W – Standard
8	• Parking Garage, 20-99W – Premium
9	• Parking Garage, 100-199W - Standard
10	• Parking Garage, 100-199W - Premium
11	• Parking Garage, >=200W - Standard
12	• Parking Garage, >=200W - Premium
13	• High/Low Bay LED, 20-99W w/controls
14	• High/Low Bay LED, 100-199W w/controls
15	• High/Low Bay LED, >=200W w/controls
16	The overall goal for Upstream High/Low Bay, including the above measures, is
17	9,913,074 kWh. The incentive budget for these Upstream High/Low Bay measures is
18	\$1,102,298
19	
20	(3) Electric Large Commercial and Industrial New Construction Program
21	New measures in the Sub Program HVAC ECM Pump and HVAC Air Conditioners:

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1	Upstream HVAC Clean Water Pump
2	High Efficiency Condensing Units
3	The incentive goals and incentive budgets for this measure group are:
4	• Upstream HVAC ECM Pump: 19,000 kWh and incentive budget of \$2,952
5	• Upstream HVAC Air Conditioners: 700,000 kWh and incentive budget of
6	\$149,321
7	
8	(4) Electric Large Commercial and Industrial New Construction Program
9	New measures in Sub Program Upstream Food Service:
10	• Refrigerator, Glass Door, <15 ft ³ , Electric
11	• Refrigerator, Glass Door, 15-29.9 ft ³ , Electric
12	• Refrigerator, Glass Door, 30-49.9 ft ³ , Electric
13	• Refrigerator, Glass Door, ≥50 ft³, Electric
14	• Refrigerator, Solid Door, <15 ft ³ , Electric
15	• Refrigerator, Solid Door, 15-29.9 ft ³ , Electric
16	• Refrigerator, Solid Door, 30-49.9 ft ³ , Electric
17	• Refrigerator, Solid Door, ≥50 ft³, Electric
18	• Freezer, Glass Door, <15 ft ³ , Electric
19	• Freezer, Glass Door, 15-29.9 ft ³ , Electric
20	• Freezer, Glass Door, 30-49.9 ft ³ , Electric
21	• Freezer, Glass Door, >50 ft ³ , Electric

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1		• Freezer, Solid Door, <15 ft ³ , Electric
2		• Freezer, Solid Door, 15-29.9 ft ³ , Electric
3		• Freezer, Solid Door, 30-49.9 ft ³ , Electric
4		• Freezer, Solid Door, ≥50 ft³, Electric
5		The overall kWh goals for, Upstream Food Service, including the above measures, are
6		77,476 kWh with an incentive budget of \$38,760.
7		
8		(5) Gas large Commercial and Industrial New Construction Program
9		New Measure Group added:
10		• Water Heating Boiler, 94% TE – 4,761 MMBtus, incentive budget \$67,816
11		
12	V.	CONCLUSION
13	Q.	Does that conclude your supplemental testimony?

14

A.

Yes.